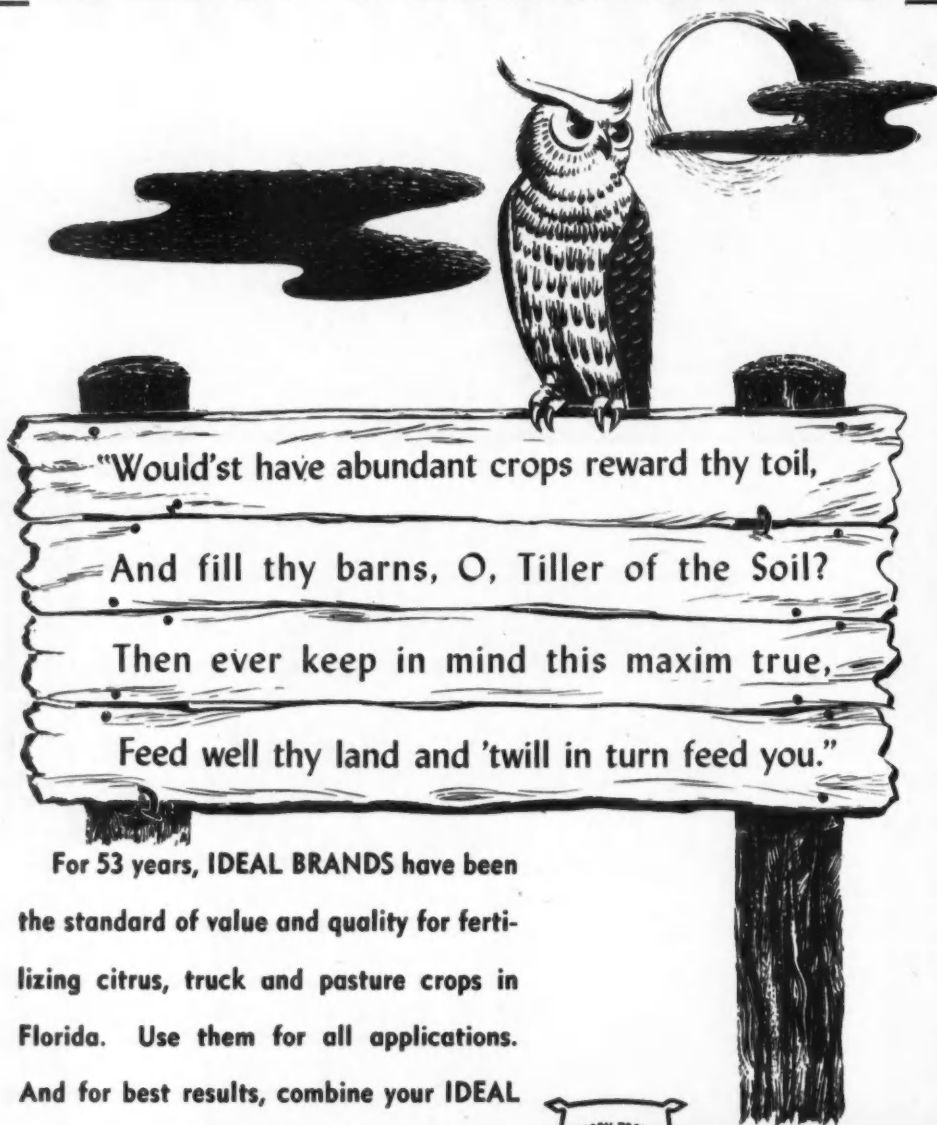


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*Citrus Industry*



HON. MILLARD F. CALDWELL  
Governor of the State of Florida

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## Some Unusual Florida Trees . . .

ERDMAN WEST

Botanist, Florida Agricultural Experiment Station

There are over 300 different kinds of trees growing naturally within the limits of the State of Florida. This large number of tree species should not be startling when it is realized that Florida has one of the most abundant floras in the United States. Some of this vast flora is Northern in ancestry, some is West Indian, some is just plain home-grown Floridian and all of it is interesting. It is not surprising, then, that at least a few of these trees possess unusual characters. Let's look at some of them.

Our common bald-cypress or river-cypress is a tree we are accustomed to seeing every day. There doesn't seem to be anything unusual about a cypress, or is there? Pines, cedars, yews, spruces, and firs are called evergreens because they are green 12 months in the year. They are also cone-bearing trees or conifers. Cypress is a conifer too but it isn't evergreen because it sheds its leaves each autumn. It goes even farther than that, it sheds many of its smaller branches too. The bald-cypress, as a conifer, really goes to extremes in being different. It has another interesting character too, one possessed by few other trees. The bald-cypress has knees, out-growths from the roots that project several inches to three or four feet above the roots. These are presumed to be breathing organs that supply air to the roots when they are covered with water.

There are other Florida trees that are unusual in certain other respects. The sand pine of the coastal sand dunes and the "Big Scrub" has a special safeguard in case of fire. Most pine trees scatter their seeds every year, but not the sand pine. Many of its cones stay tightly closed year after year and a few may even be partly overgrown by the expanding trunk and branches. But let a forest fire sweep through and see what happens. All the trees are burned to death, seedlings, old trees, and even the seeds on the ground. Now as the dead old trees dry out, the long-closed cones

open wide and scatter their seeds on the bare sand. So many seeds may be scattered after such a fire that the seedlings will come up as thick as the proverbial hair on a dog's back.

The common or red mangrove on the other hand, lives in a very

moist habitat where fires are rare indeed. It has to look for new worlds to conquer and it has developed a very proficient method of doing that, too. The seeds are produced in a normal manner, but do not fall or shed at maturity. Instead, they remain attached and continue to grow on the mother plant. They develop a long, slender, spindle-shaped root slightly heavier at the lower end. It may be a foot or more long when it finally falls off and as mangroves grow in the edge

(Continued on page 20)



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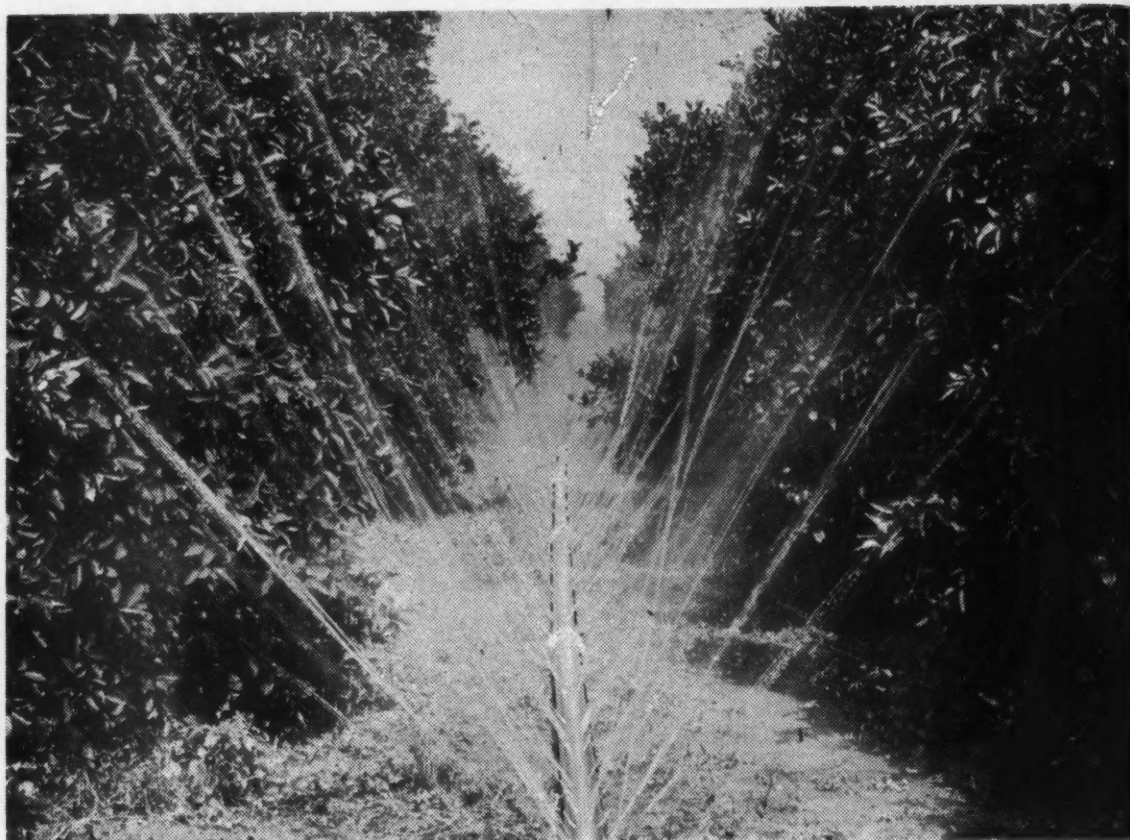
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## The Role Of Zinc In Crop Production . . .

Farmers for centuries have been interested in the soil's ability to produce crops and sustain life. In recent years, the tremendous increase in the use of fertilizers and resulting increased yields have stimulated further interest and research in the frequently baffling problems of how the soil influences plant growth.

Zinc is an element which only recently (about fifteen years) has been recognized as essential for plant growth. At present, zinc is being used extensively in fertilization and spray programs in Florida. How much zinc occurs naturally in Florida soils, what factors affect availability to plants and how did it come to be recognized as being essential?

About seventy-five years ago, a French worker first reported that zinc was necessary for the growth of certain fungi as well as higher plants. He thought it was not merely a stimulant but an essential element and that sometimes when growth was obtained without zinc being intentionally added, it was due to the presence of zinc as an impurity. Other French workers, just prior to World War I, argued this point at some length, some considered that zinc was unessential, others that it was definitely needed by plants. This argument serves as an illustration of the dif-

LEWIS H. ROGERS

Associate Bi-Chemist, Florida Agricultural Experiment Station

ficulties sometimes encountered in work with the minor elements — frequently the purest chemicals obtainable contain appreciable quantities of impurities and even the laboratory glassware often contributes unsuspected traces of impurities. For this reason, work in this field requires a great deal of painstaking purification.

The argument as to the essentiality of zinc was settled quite definitely by a later French worker during World War I and by workers in the United States about ten years later. It is now established beyond question that zinc is an essential nutrient for almost all plants.

Practical application of this discovery was slow, even though reports as early as 1912 showed stimulation of wheat, oats, maize, lupines and peas when zinc sulfate was applied in the field at rates from 5 to 50 pounds per acre.

Beginning in 1927, workers in Florida found field responses to zinc on corn, peanuts, peas, millet, as well as tung, pecan, citrus, and peach trees, and other agronomic and horticultural crops. Workers in other states, especially Georgia, Louisiana, Texas, Arizona and

California, have reported similar results.

In 1931 and 1932, four different groups of workers discovered independently that treatment with zinc, through the soil and other ways, will cure a serious grove disease—one that affects many kinds of trees from Florida westward to California and north at least to the Canadian border. Many millions of dollars worth of land otherwise excellent for groves are worthless unless zinc is supplied to prevent or cure this disease. It has been given various names on different types of trees such as "rosette" on pecans, "little-leaf" on grapevines and peaches, "frenching" on citrus, and "bronzing" on tung. To correct these conditions, zinc may be applied as zinc sulfate on the soil or by spraying the foliage with a dilute zinc sulfate solution, to which lime is frequently added.

The amount of zinc which is present in soils varies tremendously. In one virgin Florida soil the total zinc present was found to be less than two pounds per acre. Only a small percentage of this would be available to plants growing on this soil. Other Florida soils have considerably more zinc but in spite of this, many crops require supplements of this element.

The quantity of zinc removed by  
(Continued on page 19)

# Some Changes In Handling Citrus . . .

The old sawdust polisher is among the writer's earliest recollections upon coming to Manatee County in 1919 or about 27 years ago. Although a modern version of packing machinery was in general use, this old time apparatus was still in operation at the Victor Nettles packing house in Palmetto. This equipment consisted of long wooden cylinders into which both fruit and sawdust were placed thru a hinged trap door. The cylinder, or drum, was set on axis pins at ends so as to revolve and thereby the sawdust imparted a shiny polish to the fruit. Motive power usually consisted of a man with two good legs as drums were turned by means of a pedal device, similar to a bicycle. Though somewhat primitive and slow this method of cleaning and improving the appearance of citrus was apparently quite satisfactory in its time.

A little later the writer ran across a pile of old Birch bark straps under another packing plant in this locality. These wooden straps were commonly used for strapping packed boxes in the early days of citrus shipping. Old timers will tell you it was necessary to soak these straps in water to prevent breakage in bending around corners of the box. Metal strapping took over the reinforcing from Birch straps.

In the early '20's fruit was often hauled to plant on wagons drawn by mules or horses as modern motor trucks were only coming into general use. Often the fruit was run thru machinery and packed direct from grove without any form of coloring treatment. A fair natural color was the principal guide as to time to pick. About the only grades mentioned then were brights, goldens and russets.

Labor, of course, was plentiful in the '20's at from 15c to 25c per hour. In fact, the "No Help Wanted" signs were usually tacked up about the plant to help ward off employment seekers. Even then, they would often ask for a job while looking at the sign. Paying off the help was really a simple matter then. On Saturday afternoon the foreman poured out a sack of

W. R. HAMITER  
Secretary-Treasurer Domino Citrus  
Association

money on a table or desk and with his time book readied he hollered "Come and get it" checking off each employee as pay was counted and handed over. No time consuming regulations to keep track of then and employees stayed around until the job was completed.

Good standard orange boxes were plentiful at approximately 15c each complete. The best Cypress field boxes with solid "one piece" end heads were obtainable by the carload at 50c or less complete. Most of the fresh citrus now is shipped in the Bruce box or a wirebound container. This package is a sort of cross between a crate and a sack. However, a very practical package which almost eliminated the need for paper wraps. It is sometimes asked why use of Bruce boxes has become so universal. Among the reasons are that it costs less, is easier assembled and loads well in cars without customary stripping and bracing. Crate mills prefer to furnish this package because it requires less lumber (due to wire reinforcing) and being made complete on an assembly line is easier to make than many separate parts for the standard style nailed box.

In the early '20's most houses had installed power equipment considered modern at the time. With the above new processes and discoveries began to come along. Some one discovered that the carbon gas generated by a kerosene stove would color the skin of citrus fruit if stored a few hours in a room filled with the gas. Most houses then installed coloring rooms and a stove house with pipes leading to and feeding gas to rooms. Sometimes the gas almost killed the man taking care of the stoves, but the business of coloring had to go on. This practice was continued until chemists discovered an easier and more practical method of coloring by use of compressed Ethylene gas. A small amount of this manufactured gas is injected or liberat-

ed into room where fruit is stacked and the fruit takes on a natural-like color in a few hours with proper temperature and humidity control. With the convenience and better results the kerosene stoves vanished.

With development of artificial coloring processes the maturity problem was created for solution. Many growers, in those days began to believe in the old adage "that the early bird gets the worm" and proceeded to pick and ship fruit whether matured or not. With artificial methods he no longer had to wait for reasonable natural color. Sometimes some rather "ricey" fruit was shipped away that you couldn't push a spoon into and the shipper had little inclination to try, much less to eat it. This condition prompted the enactment of strict maturity laws and rigid inspections before shipment. This was to protect the consuming public and in the long run the citrus industry.

Waxing processes came along during the above period which involved methods of treating and sealing the outer skin with a thin film of wax to prevent decay and drying out on the retailer's display. The writer also remembers some citrus men toying around with the idea of dyeing fruit with vegetable dyes. Actually several attempts were made with little or no success. Later this process was perfected and is commonly known today as "Color-Added" and makes for a rich pleasing appearance to oranges.

Culls were a problem in those old days and represented an almost complete loss and in addition considerable expense to dispose of. Mostly, they were hauled away and dumped in the woods or nearby stream. Often the dumped and decaying culls created a howl from health officials and nearby residents . . . Already, however, a chemist was at work on the problem of utilizing "off grade" fruit. The late C. E. Street, a pioneer in development of the vast citrus canning industry, was experimenting with canning and preserving processes here in our City of Bradenton. This

(Continued on page 25)

# Timely Pest Control Pointers...

A. N. TISSOT

Entomologist, Florida Experiment  
Station

Insect problems are always with us, but they are constantly changing. Many insects have definite seasonal cycles, being very numerous at certain times of year and conspicuously absent at others. Today, a few of the more prevalent insect pests and problems will be briefly discussed. The insects to be considered, have been chosen on the basis of inquiries that have come to the Experiment Station during the past few weeks.

Several persons have been concerned about ants nesting around the roots of plants. Of course it is easy to destroy ants in their nests by means of carbon bisulphate or cyanogas, provided the nests are at a safe distance from growing plants. However, these materials are poisonous to plants also, and will injure or kill them if applied too close to their roots. An emulsion made from carbolic acid, fish oil soap, and water is effective against ants and can be used safely around plants. The directions for making the emulsion are somewhat complicated and will not be given now, but anyone can get them by writing to this Station and asking for them.

DDT has proven effective against many kinds of ants and can safely be used around most plants. Sometimes all that is needed is to dust the surface of the nest a few times with a 5 percent DDT dust. This kills some of the ants and those that are left will often move their nest to some other place where they can be killed with carbon bisulphide. Usually, however, DDT in water is more satisfactory, as it will soak down into the nest and kill more of the ants. A DDT emulsion probably is preferred, though the water dispersible forms can be used. As commonly sold, the emulsion concentrates usually contain about 25 percent of DDT. One-half cupful of the concentrate in 3 gallons of water gives a liquid of the proper strength. Pour a liberal quantity of this liquid around the bases of the plants where the ants are nesting. If all of the ants are not killed with one application, repeat the treatment after a few days.

A few complaints have come to

us of shade trees and fruit trees dying rather suddenly. Sometimes no apparent cause of the trouble can be found, but often numerous holes are seen in the bark, or sawdust-like material and gum ooze out of the bark of trunks or branches. On digging into the bark one can often find small hard shelled beetles or their soft whitish grubs or larvae. Several different kinds of beetles attack shade and other trees. The bark beetles, as the name indicates, confine their activity to the soft inner bark of trees. Other kinds of borers go through the bark into the sapwood where they tunnel and feed, and still others burrow right into the heart wood. Although these wood-beetles are quite capable of quickly killing trees, they usually are not the primary cause of the trouble. Ordinarily the wood-boring beetles do not injure trees that are perfectly healthy and vigorous, but they are very likely to attack trees that have been injured or weakened from any cause. A number of things can weaken trees and make them susceptible to borer attack. Among the more common are drought, excessive water, lightning, building activities, and pruning. It is probable that the flow of sap in a healthy tree prevents the beetles from becoming established, so anything that tends to cut off the sap will let them get started. During very dry weather trees may wilt: and even if no wilting is noticed the sap flow may be so reduced that the beetles can get a foot hold. On the other hand, too much water may be just as bad as a lack of water. Water standing around the bases of trees, or even a water-logged soil may kill some of the roots and thus injure the trees. Lightning usually makes injuries in the bark of struck trees that give the beetles good opportunities to enter the bark. During street and sewer construction and even in making the foundations of houses, roots of trees often are cut, or their trunks

injured by being bumped into by tractors or grading machinery. All of these injuries weaken the trees and make them susceptible to insect attack. Improper pruning of trees that leaves long stubs or torn bark invites insect trouble. Making conditions as favorable as possible for the trees is the best solution of this problem. If possible, water them during dry weather; if this cannot be done, a heavy mulch of leaves, weeds, or other plant debris on the ground under trees will help to conserve moisture. Excessive water can usually be removed by ditching or tiling. During building operations take every precaution to prevent injury to roots or trunks. When pruning trees, always remove branches in the proper manner to avoid tearing the bark, and treat the cuts with a suitable paint or wound dressing. Branches or trees that have been killed by beetles should at once be removed and burned before the beetles complete their development. If they are allowed to remain, the beetles will emerge and be a menace to other trees nearby.

Plaster bagworms and clothes moths have caused some concern to a few persons who have asked for control measures to be used against them. The plaster bagworm is easily recognized by its case which is shaped somewhat like a watermelon seed and is usually light gray in color. The case is made of silk spun by the larva, bits of the material on which it is feeding, and often grains of sand or other debris. Both the clothes moth and the plaster bagworm larvae feed on such animal products as woolsens, feathers and furs. The plaster bagworm generally is much less destructive than the clothes moths. It is most likely to injure rugs and carpets, and particularly those parts of them that are covered by heavy furniture, so that they cannot be cleaned regularly. Injury from clothes moths and bagworms can be much reduced by the use of DDT. A 5 percent solution of DDT in deodorized kerosene or other light oil is the form best suited for this use. This may be used to spray

(Continued on page 20)



# Agricultural Conservation Program . . .

As we approach the end of the year there are a good many items to finish up in connection with the Agricultural Conservation Programs.

Farmers are now finishing up their late soil-building practices for the 1946 program year. Some winter seedings of small grains for grazing and of winter legumes as a cover crop are still being made. Some terracing and construction of shallow ditches is also going on and all of the pasture planting is not yet completed. Some plantings of forest trees will be made before January 1. These are about all of the practices that have not been completed for the year and the weather and other conditions remain favorable for completing these needed practices.

As soon as farmers who are participating in the 1946 programs have completed all practices for the year they should report the kind and amount of such practices to their county office, January 15 is the cut-off date for such reports but it would be helpful and also appreciated if the reports can be turned in earlier. You know the 1946 programs operates under positive budgetary controls and it will facilitate making payments to get these reports in early.

The county offices will continue to be busy places for the next few months. In November and December here are some of the jobs they are handling: Receiving reports on practices carried out and getting the records in shape to make up the applications for payment; issuing purchase orders for conservation materials and services; receiving and processing applications for farm construction; working on listing sheets used in connection with establishing 1947 farm allotments for tobacco, and 1947 Irish potatoe goals for individual farms. They are also making preparations to hold elections for committeemen who will serve in 1947, and to get the 1947 program under way and off to a good start. In the producing counties the Crop Insurance Program for cotton is to be presented to every cotton farmer so he will have the opportunity to secure this protection for his 1947 crop.

H. G. CLAYTON

State Director, Production and Marketing Administration.

This year performance men measured the tobacco acreage on every flue-cured tobacco farm as a part of the marketing quota program. From the state office the field work of these performance men was checked to see that accurate work was turned in. For the soil-building practices a farmer makes his own report of practices carried out, then the county office employees check 10 percent of these farms and the state office will check about one-fifth of this 10 per cent. These checks are required by the regulations in order to determine whether in all counties and in all states practice specifications are being followed and the amount of practices is being correctly reported. This procedure is to safeguard the program and to protect individual farmers from unfair criticism.

In the 13 years of my connection with the various agricultural action programs the operations this year have been the smoothest and best received by farmers. I feel the farmers who have participated this year will be well pleased with the payments they will have earned. Payments will soon begin for those farms that have carried out practices for not more than the farm allowance. In some counties it will be possible to make payments to the farms with excess earnings by February and in other counties it will be a little later. Under the budgetary procedure each county has an allocation of funds and so long as total earnings do not exceed the allocation, all farms can be paid in full as soon as it can be definitely determined that county earnings are within the allocation. In counties where earnings are more than the allocation, the farms that did not earn more than the farm allowance can be paid early as they stand on their own allowance, but the other farms will have to be paid later since in addition to their own county allocation they will share in any underearnings by other counties

and it takes longer to make the required determinations. In the event Florida earns above the state allotment it will share in under-earnings by other states or conversely should Florida fail to earn the full state allotment any balance would go to other states with excess earnings.

This year has been another year of total record agricultural production in this country and while a few crops were off, this was offset by production of other crops. Reports recently received indicate that agricultural production in war torn countries has made a remarkable recovery. Food exports from America during the summer months reduced reserves in this country to a dangerously low point but many lives were saved and this food enabled other countries to get back into production. Now with this year's bountiful crops the reserve supplies can come back to near normal in this country.

The national production goals for 1947 call for an increase in production for cotton, flax, rye, sorghums, dry beans and sugar, and for reductions in a few crops such as truck crop, potatoes, some types of tobacco, harvested peanuts, and oats, and for only slight changes in other crops. The most significant livestock goal change is for a 10 percent increase in hog production. The egg goal is down about 6 percent and the other goals vary only slightly from the 1946 production. These shifts afford an opportunity for more land conservation practices and measures to overcome the heavy drain on soil fertility by war-time production.

In conclusion, I would like to call attention to the fact that November has been set aside as the month in which farmers would be especially invited to purchase government saving bonds. Many of you have received a little stuffer on saving bonds in letters from the county office. These bonds are mighty desirable property and I wish every farmer a share of all the good things, so I would urge that November not be allowed to pass without getting yourself some bonds or

(Continued on page 9)

# Home Orchard Varieties

For those individuals having sufficient space on their home grounds, the planting of a home orchard is desirable as a long-time project because of the wholesome fresh fruits and nuts it will produce. The ability to supplement the fruits normally obtained from the commercial market from trees or vines growing in your own back yard is especially desirable, since it increases the amount and variety of fruits available to the family. The importance of fruit in keeping the human body in good condition has long been recognized and for this reason it fills an important place in the diet.

Planting and caring for a home deciduous orchard was discussed last week by Mr. Blackmon of the Florida Agricultural Experiment Station. This naturally brings up the question of what varieties to plant.

If there is not sufficient space on an individual's property to plant all the different kinds of fruits we mention, those varieties should be selected which best meet the taste preference of one's family.

Jewel, Waldo, Angel and Peento varieties of peaches are recommended for central and northern Florida. In addition to these varieties, Estella, Gibbons, and Greenboro can be grown in the northwestern part of the state.

Persimmons are a very desirable fruit for the home orchard and can be grown in northern, central, and southern Florida. In order of their importance, the varieties recommended for planting are Tanenashi, Fuyugaki, Tampopan, and Okame. Tanenashi and Tampopan are seedless varieties and set fruit without pollination. Fuyugaki and Okame are seedy varieties and require the presence of a pollen-producing variety such as Gailey to set a normal crop of fruit.

For pears, Hybrids of the Chinese Sand pear and the common pear are the type commonly grown in Florida. While not satisfactory for eating fresh, this type is good for cooking purposes. Only those varieties having a high degree of resistance to pear blight have proven satisfactory. The pear may be grown in central and northern Florida. The varieties recommended for planting are Pineapple and

R. D. DICKEY

Assistant Horticulturist Florida Agricultural Experiment Station

Hood. The Hood pear is sometimes eaten fresh.

Plums may be grown in the northern part of the central Florida area and in northern Florida. Excelsior is the variety that has given best results. In addition, McRae, Red June, and Terrell may be planted in the northwestern part of the state.

One of the limiting factors in growing figs in Florida is their susceptibility to root-knot. When possible, the planting should be made upon soil which has not previously been in cultivation. When this is not possible, the plants may be afforded a certain amount of protection from root-knot by keeping them heavily mulched or by planting close to buildings so that the roots can run under the buildings. Figs can be grown in northern, central, and southern Florida. Celeste is the most desirable variety, Green Ischia is next in importance, and Brunswick and Brown Turkey are occasionally planted.

Grapes may be grown in northern and central Florida and with only fair success in southern Florida. Of the American bunch type, R. W. Nunson, Fredonia, Niagara grafted on a good rootstock, Florida Beacon, and Carmean will give a succession of ripening dates. In the Muscadine group, Scuppernong is the most popular variety. Fruiting season may be extended by planting in addition, Thomas, James, and Flowers. Muscadine grapes are dioecious — that is, male and female flowers are borne on separate plants. To insure pollination a male muscadine vine should be included in the planting.

Blueberries may be planted in northern Florida and, in locations suited to their growth, make a desirable addition to the home orchard. Varieties recommended for this purpose are Owens, Hagood, and Black Giant.

Blackberries may be grown in central and northern Florida. The varieties recommended are Advance and Youngberry. Advance has proven the most satisfactory and has the added advantage of being resistant to the double-blossom

disease. Youngberry has been satisfactory on the clay soils of the northwestern part of the state, but is irregular in bearing in central Florida. It has the added disadvantage of susceptibility to the double-blossom disease which reduces the crop greatly when present.

In northern Florida, where pecans can be successfully grown, no home orchard would be complete without one or more trees, depending upon the space available. It is recommended that prolific varieties such as Moore and Curtis, which generally do not require spraying, be planted.

During the past few years there has been a large demand for planting stock of the fruits and nuts mentioned, with the result that there has not always been enough to go around. To those of you who have not been able to obtain planting stock of the fruits selected this year and those who expect to plant next winter, it is suggested that you send your order to the nursery early next fall.

## AGRICULTURAL CONSERVATION PROGRAM

(Continued from page 8)

some additional bonds to add to those you already have. There are good reasons to think that a dollar invested in bonds now will buy much more a few years from today. The Treasury Department feels a sound financial program for farm families is to avoid speculation in land, to keep debts at a safe level, and to continue to build financial reserves in United States Savings Bonds.

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## WHY THE LOW PRICES?

The recent disastrous slump in the price of oranges on the auction markets, and to lesser degree the slump in grapefruit prices, has given rise to numerous and varied questions and equally numerous and varied explanations.

Among the reasons given are excessive volume of shipments, undesirable sizes, competition of other fruits, unseasonably warm weather in the consuming areas, and a general indisposition on the part of buyers to take the offerings.

Each of the reasons advanced has undoubtedly played a part in creating the slump. Taken together, they have without question had an influence in bringing about the lowering of the price level. But, after all, isn't the basic reason to be found in the shipment of quantities of fruit of inferior eating quality? Unseasonably warm weather in Florida has delayed the ripening of the fruit far beyond the usual date. True, no fruit can be shipped which does not pass the maturity tests of the inspection bureau, but how about the taste test? And it is the taste test which governs the purchase of oranges as of any other edible product.

Why should California oranges be bringing double or treble the prices received for the Florida product? There is just one reason—the off-size California oranges, no larger than the smallest Florida oranges shipped, are fully ripe. The same cannot be said of much of the Florida fruit which has been shipped. Every unripe Florida orange reaching the Northern markets has a tendency to hold down the price of the wholly ripe fruit which goes with it or which follows in later shipments. The consumer has become suspicious and the suspicion is reflected in the price.

Florida never produced a finer quality of fruit than that which is now on the trees. When fully ripe that fruit cannot be surpassed by any oranges in the world—we Floridians believe that it cannot be equalled by any oranges in the world. But we cannot expect consumers to pay top prices for fruit which Floridians themselves would not think of eating.

Year after year the same situation has developed. Regardless of its eating quality, each year fruit is rushed to market as soon as it will pass the maturity tests established by law. No attention is paid to the taste test

which alone should govern until we have a higher maturity test. During the war years we were able to get away with it by reason of the great demand created by Federal purchases and the scarcity of competing fruits. That situation no longer exists. The individual buyer demands quality, and when he finds quality to his liking he is willing to pay the price for it—as demonstrated by the excessive price now being paid for California fruit of small size but good eating quality.

With the coming of cooler weather to hasten the ripening of the great crop of desirable sizes and exceptional appearance, we may expect a steadily increasing demand for the Florida product at increasingly satisfactory prices, but it will take time and a vast amount of sales effort to overcome the prejudice created by the early shipment of unsatisfactory fruit.

The solution of this problem is in the hands of the growers and shippers themselves. The Florida Citrus Commission is doing everything possible to stabilize the market; the inspectors of the Inspection Bureau are enforcing the provisions of the maturity law with vigor and impartiality, but all this is without avail so long as no attention is paid to the taste test. If shippers would refuse to ship, and growers refuse to sell, fruit which they would not be willing to place upon their own tables, the problem would be solved. But experience has shown that such an ideal condition can not be achieved. The next best step, and the only one which appears at all possible, is a revision of the maturity laws which will bring the maturity tests more nearly into harmony with the taste tests which the consumers demand and to which they are entitled.

It is high time that Florida growers and shippers put their own house in order; stop making excuses and offering alibies; demand adequate maturity laws, absolute enforcement and give their fruit an opportunity to meet competition from whatever source upon an equal footing, with the knowledge that upon such a basis no fruit in the world can out-rank us—nor outsell us.

While the immediate damage to citrus from the October storm was classed as negligible, reports from the field indicate that the excessively heavy droppage now in evidence may be due to the lashing which the trees received during that incipient hurricane. At any rate, it is certain that the droppage now going on in many sections of the citrus belt will materially reduce early estimates of total yield.

Despite the very unsatisfactory prices now prevailing, Florida citrus growers are neglecting no steps to insure the production of another quality crop next season.

Dry weather during October caused growers who are equipped to do so to bring their irrigation systems into operation.



## Progress Report On Chemical Weed Killer

T. W. YOUNG

Associate Horticultural, at Meeting  
Florida State Horticultural Society

(Concluded from last issue)

Any great accumulation of 2, 4-D in the soil under Florida conditions would be prevented by leaching and its breakdown in the soil. Spraying in groves at low pressures, 75-100 pounds, and using a spray nozzle on the order of the Bean bordeaux nozzle with the aperture reduced to 1/16 inch, which throws a flat fan-shaped stream instead of the conical stream of the conventional citrus gun, would prevent serious misting. These precautions would aid in confining the spray to the species to be killed. This would be particularly important around young trees or varieties displaying a relatively high degree of susceptibility such as lemons and Navel oranges apparently have. If vines had grown into the trees they should be pulled so the tops could be sprayed on the ground, or cut them and let new tops grow before spraying. Spray as soon as sufficient top has grown to absorb a lethal amount of 2, 4-D and before they are in the lower branches to any extent or have started producing seeds. Cover crop grasses are affected little if at all by the concentration of 2, 4-D that would be necessary. Time the spraying so as to permit other desirable cover crop species to seed and thus regenerate themselves naturally. Spraying for water hyacinth (*Piaropus crassipens* (Mart.) Britton) control gave no indications that fish were killed or cattle grazing on the sprayed plants harmed by 2, 4-D. New compounds and proprietary mixtures of 2, 4-D are constantly coming on the market. Prices have not yet been fully established or stabilized but most of these will be cheaper, and all of them are more easily made up, than the sprays used in the foregoing tests. The several newer compounds and mixtures tested thus far by the Citrus Station have all been about equally effective at a given concentration and in the absence of rain for 8 or 10 hours following application. Although conditions vary widely, one might now predict that perhaps 3 applications, judiciously applied, at an average

cost of about \$6.00 per acre per application for material, labor, and equipment would give practical control of the balsam vine in rather heavily infested groves for a period of several years.

We have under way at the present

time additional tests on a commercial scale with several of these newer materials. From these we hope, within the course of a year or so, to determine the ultimate effects of 2, 4-D on citrus and desirable weed species, as well as

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of Peace  
and Joy  
to you



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the best formulations with respect to stickers and spreaders for various species. By then we should also be able to tell about its cultural and economic feasibility and to make specific recommendations for—or against its use in citrus groves. In the meantime, regardless of the promise it now seems to offer, it is to be recommended in citrus groves only in an experimental way, and then with a full knowledge of its possible damaging effects.

On first thought water hyacinth eradication may seem a little far afield from citrus culture. The irrigation and/or drainage, however, of citrus groves in many sections is dependent upon lakes, canals, and streams so badly infested with hyacinths so as to seriously impair their usefulness in these respects. Moreover, these sources of water supply and drainage are gradually filling with decayed vegetation from the hyacinths. The advantages of an economical eradication method for hyacinths is so obvious that it needs no discussion. Thousands of dollars have been spent in Florida in the past for this purpose without securing any practical relief. Accordingly we initiated a series of tests last year on the feasibility of such a program with 2, 4-D.

The spray mixtures applied in these treatments and the concentrations of actual 2, 4-D at which each was used were as follows: (1)

(2) Manufacturers formulation of methyl ester of 2, 4-D at 500 and 1000 ppm (2) Manufacturers formulation of butyl ester of 2, 4-D at 500 and 1000 ppm. (3) 2, 4-D in Carbowax formulated as in previous tests at 500 and 1000 ppm. (4) Manufacturers formulation of alkanolamine salts of 2, 4-D at 500 and 1000 ppm. (5) the sodium salt of 2, 4-D at 500 and 1000 ppm, plus B1936 at 4 oz./100 gal. as spreader. (6) The ammonium salt of 2, 4-D at 500 and 1000 ppm, plus B1956 at 4 oz./100 gal. as spreader. (7) The sodium salt of 2, 4-D at 1000 ppm, plus bentonite at 2 lbs./100 gal. as sticker. (8) The ammonium salt of 2, 4-D at 1000 ppm, plus bentonite at 2 lbs./100 gal. as sticker. (9) The sodium salt of 2, 4-D 100 ppm, plus ½ gal. lubricating oil and ¼ oz. B1956/100 gal. as sticker and spreader. (10) The ammonium salt of 2, 4-D at 250 and 1000 ppm. plus ½ gal. lubricating oil and ¼ oz. B1956/100 gal. as sticker and spreader. (11) The sodium salt of 2, 4-D at 1000 ppm.

With the exception of a few preliminary tests with a knapsack sprayer all hyacinth treatments were applied with a power sprayer, using conventional grove equipment and relatively high pressures.

The various treatments were all about equally effective for a given concentration of 2, 4-D on hyacinths in a comparable physiological condition and under the same temperature conditions. No rain fell on any of the treatments within 48 hours after application. A good kill was obtained on young tender plants just coming into bloom when sprayed in hot weather with both 500 and 1000 ppm. 2, 4-D in Carbowax. The kill was estimated at 95% in one week with the 1000 ppm solution, with about two weeks for the same kill at 500 ppm. When this same mixture was applied at 1000 ppm on large hardened plants in cool to cold weather an estimated kill of 95% was obtained within about 5 weeks. The 500 ppm solution was not tried in cold weather. Subsequent trials were made in warm weather with the other spray combinations mentioned above on hyacinths ranging in size from young tender plants to large ones about two feet tall. The results of these trials indicate that under the average temperature conditions prevailing in central and south Florida during the spring, summer, and fall, a satisfactory (95%) kill

should be obtained on any hyacinths in about 2 or 3 weeks following proper application of 2, 4-D at concentrations from 500 to 1000 ppm. Some lag should reasonably be expected with the weaker solutions and probably a slightly poorer kill with a little more regeneration, especially under certain extreme conditions which will be discussed later.

The first conspicuous response of hyacinths to lethal amounts of 2, 4-D is a downward bending of the petiole. This occurs within a day or so after spraying. It is soon followed by a chlorosis and brownish discoloration of many leaves. Within about a week the central axis is decaying and this is soon followed by a deterioration of the root system. The entire plant finally disintegrates and sinks. Frequently the enlarged petioles will remain a discolored green and afloat for some time after the remainder of the plant has disappeared. This was observed most frequently where the weaker solutions were used.


The absence of rain immediately following any of these treatments gave no opportunity to distinguish

(Continued on page 14)



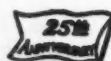
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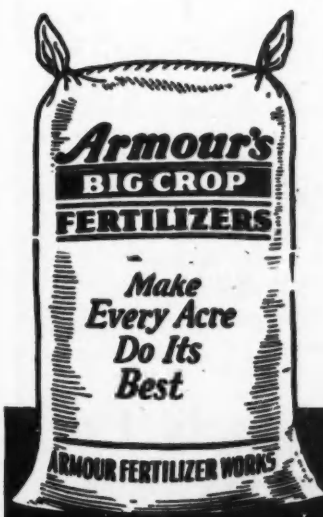
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# PROGRESS REPORT ON CHEMICAL WEED KILLER

(Continued from page 12)

between the efficiency of the various spray mixtures because of the sticker and spreader used with respect to retention of potency following rain. To get a rough idea of the relative efficiency of those with sticking and spreading agents as compared to those without these agents when rain followed soon after application some of the plots were sprayed with water as soon as the spray had dried. Sufficient water was sprayed with a power sprayer on these hyacinths receiving "rain" to be the estimated equivalent in washing effects of a fairly heavy rain. The treatments thus washed were 1000 ppm 2, 4-D from sodium salt plus oil and B1956, 1000 ppm 2, 4-D from sodium salt, 250 and 1000 ppm 2, 4-D from ammonium salt plus oil and B1956, and 250 and 1000 ppm 2, 4-D from ammonium salt. Adjacent to these were suitable control plots sprayed with the same combinations and concentrations of sprays but not washed with water.

As was more or less explained, the rate of effectiveness of all these sprays was reduced somewhat by the "rain". The kill was satisfactory on each of the 1000 ppm controls within 15 days, with a lag of a few days for plants sprayed with 1000 ppm plus a sticker and spreader and then washed. Where plants were sprayed with 1000 ppm solution, but without a sticker or spreader, and then washed, at least the rate if not the ultimate effectiveness was noticeably reduced. When the last inspection was made at the end of 20 days it was estimated that 90 to 95% were dead or apparently dying, but the absolute final kill could not definitely be determined at that time. The final results on the 250 ppm plots were also questionable at the end of 20 days. Probably about half the plants in the controls were dead with many more evidently damaged beyond definite recovery. The plants of this series sprayed with 2, 4-D plus a sticker and spreader and then washed were in a somewhat better condition than the corresponding control, however, most of them were distorted and considerably discolored. Perhaps one-half were dead or badly damaged. Those sprayed at 250 ppm without a sticker and spreader and then washed were distorted, but most

of the plants remained green. It did not seem probable that the final kill with these would exceed 30% (See footnote).

While these tests clearly showed that the water hyacinth could readily be killed with reasonable amounts of 2, 4-D, the economic feasibility of eradication by this method remains to be established. The plant is reproduced by seed and by shoots. Reproduction by seed would not appear to be an important factor, inasmuch as it is thought that probably a very small percentage germinate. The seed,

Two months after these tests with "rain" on 2, 4-D sprayed hyacinths were made the kill was approximately 95% or better on all plots except the two sprayed with 250 ppm solution and then washed. On these the kill was about 75% complete when a sticker and a spreader were used and about 50% complete where they were not used. Under both circumstances there were many distorted plants regenerating new roots above the old damaged root system. New roots were found arising both from the central axis and from the petioles within an inch or so of their bases.

however, may lie dormant for several years before germination. This might necessitate some spraying over a prolonged period for complete eradication. Rhizome shoots, which break off from the parent plant, are the principal means of regeneration. These shoots at first may sink to the bottom. In a short time the petioles become inflated with air and sufficiently buoyant to float the young plants. It would seem that one or two clean up sprays after the initial application would take care of these shoots and any other plants missed previously.

A satisfactory method of applying the spray on lakes and hard-to-get-at places in canals and streams remains yet to be found. It is primarily on this and the regeneration factor that the feasibility of a hyacinth eradication program now rests. The solution will probably have to be arrived at by some trial and error methods. There are several such movements under way in the state now.

The use of aircraft for either spraying or dusting 2, 4-D on hyacinths is frequently suggested. Such trials have been made and an

(Continued on page 16)

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# What Science Has Learned about Natural Chilean Nitrate



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**2. Thrown Away As Worthless.** His primitive tests completed, the Padre threw the remaining fragments of the desert rock out of his laboratory window. The fragments fell into the garden, where they lay hidden and forgotten.



**3. Amazing Transformation.** Returning from a journey some time later, the Padre discovered that part of his garden had grown more luxuriantly than the rest, the vegetables more succulent, the blooms more dazzling in their beauty.



**4. Food For His People.** The Padre found the discarded "nitre" rock was the cause. Tests confirmed his discovery. Then he showed the Indians how to use it to produce more food on land that had barely kept them from starvation.

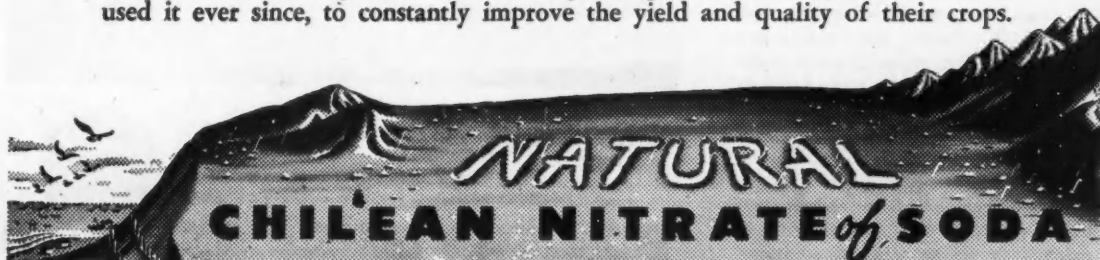
## Farmer's Forum



### from UNCLE NACHEL'S BOOK OF EXPERIENCE

"On one field of corn where I had a good stand, I put 200 lbs. per acre of Chilean nitrate when the corn was knee high. On one patch I doubled the application and on another I didn't put any soda. Later, when we checked up on the results, I found that the corn that had not gotten any soda had fired above the ears. The corn that got 200 lbs. of soda showed a little firing, while the corn that got double, had not fired at all. I used to think that firing was caused by dry weather but now I believe it is hunger for nitrate."—From J. M. B.

Thus did science first learn of the great nitrate ore deposits in the Chilean desert and of their potential value to mankind. The first shipment of natural nitrate reached Norfolk, Virginia, in 1830 — 116 years ago — and American farmers have used it ever since, to constantly improve the yield and quality of their crops.



# PROGRESS REPORT ON CHEMICAL WEED KILLER

(Continued from page 14)

unsatisfactory kill for dusts reported. The likelihood of getting drift from spray or dust to cultivated areas adjacent to the treated area may also be an objectionable feature to this method of application, but there are some reports to the contrary with sprays. At least in uncultivated areas application from the air seems to have promise. Aerosols of 2, 4-D might be employed in such places.

Occasionally the question arises as to the damage that might result to cultivated crops if irrigated or sprayed with water from a body where 2, 4-D had been applied to hyacinths. The risk for irrigation appears negligible. Irrigation intakes are placed 3 or 4 feet below the surface to prevent sucking air. Thus before reaching the irrigated crop even a heavy application of 2, 4-D would be diluted to a fraction of a part per million. In the soil it would be further diluted by the water already present before irrigation started. The risk from spraying appears to be somewhat greater. Frequently the intakes for automatic tank fillers are barely submerged. If 2, 4-D had very recently been sprayed or dusted in liberal amounts in the immediate vicinity of the intake, its concentration in the spray water might be dangerously high.

Para grass (*Panicum purpurascens*, Raddi) is another serious pest in some groves and along some canal banks. Although 2, 4-D sprays have been reported as ineffective for the control of such species, a series of para grass plots were sprayed at Davie about 5 weeks ago. Three different formulations of 2, 4-D, which included the carriers it was thought might be most effective, were used on grass about 3 feet tall. These were each applied at 1000, 2000 and 4000 ppm. Within 4 days the leaf blades had become chlorotic on the plots at 2000 and 4000 ppm, that sprayed at 1000 ppm was little affected. The next inspection was made a day or so ago. The above ground parts of some of the very young shoots receiving spray at 2000 and 4000 ppm were dead but the older shoots were making new terminal growth. All roots appeared to be living—unharmful. Some slight leaf blade chlorosis was the extent of damage from the weakest solutions.

Wild caladiums (*Caladium* spp) sometimes obstruct the flow in drainage ditches of hammock groves on the East Coast. They are difficult to control by mowing, regenerating new tops rapidly from fleshy roots and rhizomes. Excellent control was secured within about 10 days with 2, 4-D at 1000 ppm from the ammonium salt in one test near Vero Beach. Caladium leaves were found hard to wet, but the desired results were obtained by the addition of 3, 4 gallon of oil emulsion per 100 gallons and misting the spray on through a No. 3 disc at about 75 pounds pressure.

All of our tests thus far with 2, 4-D seemed to signify that the

damage done to a susceptible species was approximately directly related to the amount of 2, 4-D retained on the foliage in proportion to the size of the stem and extent of the root system. Plants such as balsam vine and water hyacinth, which usually have relatively large leaf areas as compared to stem and root volume, were readily killed with fairly light applications of 500 ppm solution. Poison ivy (*Toxicodendron radicans* L.), large elder, and Australian pine suckers having little leaf surface as compared to stem and underground parts were only severely checked by the same spray. Thus the use of the lower concentrations in sufficient quantities to lightly but

(Continued on page 18)

## WHEN POTASH TELLS ITS STORY

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# How Fast Do Trees Grow?

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L. T. NIELAND

Extension Forester State Agricultural Extension Service

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How fast do trees grow? The answer to that question depends upon the kind of trees we have in mind, the soil, and the conditions under which they grow. There are about 20,000 different trees of commercial importance in the world. Trees are usually limited to certain regions by soil and climate. For instance, tropical trees cannot be expected to grow in regions of severe cold. Neither can trees accustomed to wet lands succeed in very dry soils. Also, trees which grow only in rich soils cannot be expected to do well in poor soils. Most forest trees make their fastest growth only on soils to which they are adapted. This is an important thing to remember when planting forest trees.

But, to get back to our question of how fast trees grow, Florida farmers and other timber growers will be most interested in how fast the valuable native timber trees grow. A knowledge of tree growth will help the farmer to decide which trees to plant and which species to favor, and retain in his woods.

Slash pine is one of the fastest growing trees of the seven species of pine native to Florida. Profitable harvests of pulpwood have been taken from planted stands 13 years after planting. Of course, only the crowding, or defective trees were removed, leaving the more thrifty, better-shaped trees to grow into larger sizes and more profitable timber.

Actually, planted stands of slash pines have produced over 50 dollar's worth of wood per acre in 13 years, yielding an average profit of more than three dollars an acre each year from the time they were planted. A stand of slash pines which had come up in an old field in northeastern Florida reached a height of 61 feet in 17 years. The trunks of these trees measured 11 inches in diameter. On good land slash pines reach a height of 100 feet and a trunk diameter of 18 inches in 50 years. Individual trees, of course, may be much larger.

Longleaf pine on good soil grows nearly as fast as slash pine. However, longleaf is adapted to much

drier soils than slash pine, and may be the most profitable tree to grow on many of our deep sandy soils. Of course, on scrub oak ridges or other very thirsty soils, longleaf grows very slowly. A tree growing in such soil was measured last week. It had plenty of room to grow and was protected from fire during the past 30 years. This longleaf pine was 85 years old, yet it was only about 60 feet high and had a trunk diameter of 13 inches. If this tree had been on good soil, it would probably have been over 100 feet high. Longleaf pine may reach an age of 200 or more years, but it usually begins to deteriorate after 75 years.

Native red cedar makes a fairly fast growth on good moist soil. It makes its fastest growth on limestone, or mari soil containing plenty of moisture. Cedars planted on good moist clay soil have reached a trunk diameter of 14 inches in 20 years. When growing in limestone hammocks under forest conditions, red cedars have attained heights of 60 to 70 feet and a trunk diameter of over 20 inches. Such trees have long smooth trunks, free of limbs and knots. Trees planted on good strong clay or limestone soils may reach fence post sizes in 12 to 15 years. However, on dry, sandy soil this tree makes a very slow growth and may require 20 or more years to reach fence post size.

The southern cypress trees of our swamps and river bottoms are extremely slow growers. Many of the large log trees are over a thousand years old. Cypress trees require 400 or 500 years to reach maturity. Therefore, cypress does not seem to offer much in the way of a quick return to the tree planter. Several generations of men must come and go before cypress trees produce much of the dense, durable, and high quality heartwood for which this tree has long been famous.

The yellow poplar, or tulip tree, commonly found in stream bottom lands of West Florida, but also in some of the rich low hammocks in the Eastern part of the State, is one of our fastest growing hard-

wood trees. On good soil, it has been known to reach heights of 48 feet in 10 years, 81 feet in 20 years, and 99 feet in 30 years. At maturity yellow poplar may have a trunk diameter of more than six feet and a height of 120 feet. It is one of our tallest and most massive hardwoods, and yields a high percentage of excellent lumber. A magnificent old tulip poplar, still standing on Manhattan Island, is said to be the only remaining living thing which was there when Hendrik Hudson came to meet the Indians in the year 1609.

Some of our other valuable native hardwood trees, such as white oak, hickory, magnolia, and sweet gum grow to merchantable sizes fairly rapidly. However, great size of trunk and high value lumber come only with age, and the large trees with trunk diameters of three and four feet are usually a hundred or more years old. In the case of white oak, one of our most valuable hardwood trees, slow growth is necessary to produce high grade dense grained lumber. For tight cooperage stock the trade calls for white oak with no less than 16 rings to the inch. This means that 16 years are required to add one inch in the diameter of the tree. While pines on good soil may grow twice as fast as white oak, still, good white oak lumber might be more than twice as valuable as the pine.

Although many of our native lumber trees require 80 to 100 years, or even more, to reach maturity, this should not be too discouraging to the farmer because he may have a number of trees in his woods which are already 50 or 60 years old. By protecting these trees from fire, and with good forest management, the timber grower can often grow out many of these trees to large sizes and reap a handsome profit within the scope of his lifetime.

According to the Florida Experiment Station, there are 40 different plants suitable for ground covers in Florida gardens and lawns. Some are creeping, some erect.

# PROGRESS REPORT ON CHEMICAL WEED KILLER

(Continued from page 16)

completely cover the leaf surface seems indicated for species with abundant foliage and relatively little stem and roots. Less solution at higher concentrations would appear to be better for eradication of species with little foliage and large stems and roots. Another factor involved here is the amount of spray retained and/or taken in by leaves of various species because of the nature of the cutinization and placement of stomata. More investigation on suitable stickers, spreaders, and penetrants for various species may be needed before the water soluble salts of 2, 4-D can be used in all cases with the highest degree of efficiency obtainable with them.

For those who wish to experiment with these herbicides; there

are now 15 or more manufacturers of 2, 4-D weedkillers. The products come in both liquid and powder forms. The liquid forms range from about 10% to 40% 2, 4-D, depending on the manufacturer. They are in a carrier which acts as sticker and spreader or have these added. Some of the powder forms carrying around 60% 2, 4-D also contain sticking and spreading agents. The water soluble sodium salt contains 70% and the water soluble ammonium salt 83.5% 2, 4-D. Neither of these salts contain stickers or spreaders. The liquid formulations are generally more expensive to use. In some cases the concentrated solution has sold for \$10.00 to \$12.00 per gallon. The powder forms are relatively cheap, ranging from about \$2.00 to \$3.00 per pound. The total cost of materials would be increased slightly over these latter figures for those containing no sticker or spreader if such agents were neces-

sary on the particular species to be sprayed.

Although the Citrus Station is not yet recommending 2, 4-D sprays in citrus groves or other cultivated areas, there may be some who will wish to try them in such places. If so, certain precautions should be followed at least until it is learned more fully what to expect from these sprays. Use the lowest dilution of 2, 4-D with which it is possible to get the desired results. Spraying should be done when there is good soil moisture. Not only would this reduce the possibility of damaging concentrations in the soil, but a better kill of weeds would likely be secured because of their more succulent growth under such conditions. Keep the spray stream and mist away from those plants on which damage is objectionable. Be extremely careful in this respect around nurseries or young trees. Do not drain a spray

(Continued on page 26)

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# THE ROLE OF ZINC IN CROP PRODUCTION (Continued from page 5)

an average crop is relatively small. One hundred bushels of snap beans, for example, contain less than an ounce of zinc, while six tons of cabbage contain about two ounces. Although the quantities removed by a crop are extremely small, it may be necessary to apply 10 to 20 pounds per acre of zinc on the soil or to use a nutritional spray with 2 to 4 pounds of zinc sulfate per 100 gallons.

When zinc is applied to the soil, part of it is leached away and is lost; another part is fixed by the soil; while a third part is taken up by plants. Some plants, particularly certain woods, are able to take up relatively large proportions of zinc and when plowed under, this zinc becomes available to a crop if planted soon afterward. This procedure, better known as fallowing, has been practiced regularly in some parts of the state to minimize a zinc deficiency of corn known as "white bud." This condition can also be corrected by the use of zinc sulfate.

As mentioned above, the soil fixes a part of any zinc which is applied to it. The quantity fixed depends to a considerable extent on the pH of the soil. If lime has been applied in large quantities so that the pH has been appreciably altered, if the soil has been burned, as happens frequently in the case of muck soils, or if the soil is naturally high in lime, as in the case of a marl, zinc applied to the soil may be converted almost completely to zinc carbonate, which is unavailable to plants. For this reason, it is the practice in some parts of the state to spray zinc sulfate solution directly on crops rather than apply zinc on the soil. In parts of Dade County, for example, zinc sulfate solution has been applied by spray together with a copper fungicide. Also, in the citrus region on sandy soils and in the vegetable areas on muck soils, it has been found more satisfactory to supply the zinc needs of crops by spray than by soil application. Agronomic crops such as corn and oats and horticultural crops including tung, pecans, and peaches on sandy soils or loamy sands respond satisfactorily to soil applications of zinc sulfate.

In conclusion, it is now established that zinc is as important a plant nutrient as nitrogen, phosphorus



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Tampa And Port Everglades, Florida

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and potash. In those areas where it is required, a balanced fertilization program may require the use of 10 to 20 pounds of zinc sulfate applied to the soil, or 2 to 4 pounds of zinc sulfate per 100 gallons used as spray (either alone or in conjunction with other materials) for satisfactory crop yields.

### SOME UNUSUAL FLORIDA TREES

(Continued from page 3)

of the water, the seedling usually falls into water. It floats upright by virtue of the heavy root-end and blows or washes around until it runs aground in shallow water or on a sand bar. There, if other factors are favorable, a new mangrove thicket is started and a new island may form.

In western Florida on the banks of the Apalachicola River, near the Victory Bridge, there grows a very rare Florida tree. It has many common names, most of which refer to some of its characteristics, but it should be called "Florida torreyi". A name frequently but incorrectly used is "stinking cedar". The foliage is aromatic when crushed, but the odor is not unpleasant to most people and the tree is not a cedar. Other people in earlier times must have seen some resemblance to cedar, too, because it is often called Savern or Savin, an old name for red cedar. Outside of this small area, the torreyi grows nowhere in the world, although it has close relatives on the Pacific coast and in China. It is too rare to be used commercially, but the wood is very durable in contact with the soil.

All of the trees mentioned so far have been beneficial or at least harmless, but the strangler-fig is neither. Like all figs, the fruits are somewhat juicy and full of small seeds. Birds feeding on the fruits often drop the seeds into crevices in the tops of trees, especially cabbage palmettos. The little seedlings develop long roots that follow the trunk of the host down towards the ground. As soon as some of them have reached the soil, the fig begins to grow more rapidly. The roots wrapped around the host tree or palm stem increase in size and clasp the trunk tightly. The foliage of the fig increases in volume and density, shading the host tree and frequently killing it. By this time, the long fig roots have developed into thick trunks quite able to support the fig top alone. Now the

strangler fig stands on its own feet, all signs of its victim have disappeared and another drama of the forest is ended.

These are just a few of the interesting trees that grow naturally in Florida forests. Nothing has been said about the stately royal palm with its cement-like trunk, the leiteria whose wood floats like cork, lignum vitae which has very heavy wood, the cabbage palmetto which grows down before it grows up, and many, many others which have interesting characteristics.

### TIMELY PEST CONTROL POINTERS

(Continued from page 7)

the inside of closets, trunks, chests, or other places where woolens are kept. The spraying should be thoroughly done and particular care should be taken to treat all cracks and crevices that may serve as hiding places for insects. The real benefit from the spray comes from the residual effect of the DDT that is left on the treated surfaces. This treatment may not kill larvae that are inside clothes or other materials, so clothing and other woolens should be thoroughly brushed,

shaken, and aired before they are put away. Rugs and carpets may be protected from bagworm injury by spraying both sides with the DDT in oil. If there are young children in the home it is advisable to confine the spraying to those portions of the rugs or carpets that are covered by pieces of furniture. Those portions of the floor coverings that are cleaned regularly are not likely to be damaged anyway, so treating them is not necessary. DDT very effectively controls silverfish also, and it helps hold roaches and other household pests in check. When using DDT in oil, one should avoid spilling any of the liquid on the skin, and when spraying with it care should be taken not to inhale the spray floating in the air.

In closing I want to remind you that we are always glad to help farmers and others with their insect problems. If you are bothered with insect pests, write to the Agricultural Experiment Station or to Radio Station WRUF, describing the damage, and if possible sending specimens of the insects and you will be given the best available information on the control of the pests.

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# The LYONIZER

Department

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## Reports Of Our Field Men . . .

### POLK COUNTY-LAKE HAMILTON

J. M. (Jim) Sample

The fall application of fertilizer is practically completed and trees generally have darkened in color in response to this fertilization, which contained more nitrogen than previous feedings. Polk County as of this writing, has not received adequate rain during November, and many growers are now irrigating. It was noted that irrigation following the early fall fertilization helped increase tangerine sizes. Tangerine spot pickings are beginning, depending on size and color. A considerable volume of grapefruit is being moved to canneries with the supply heavy. Some oil spraying is being done now in blocks where the summer oil job did not get adequate control. There is also considerable spraying being done for the control of rust mite.

### WINTER GARDEN

-V. E. (Val) Bourland

The heavy droppage of fruit in this territory is becoming so heavy that it can be considered alarming to many growers. While droppage is heaviest on seedling oranges it is very heavy on all other varieties. If this condition prevails all over the state it certainly will result in a considerable reduction in the anticipated fruit tonnage. We are well under way with our fall application of fertilizer and this will be followed through during December. There will be an unusually large acreage of watermelons planted this season and this planting will get under way late in December and follow through up into January. Vegetable crops in the section are well under way. Some pepper is now being moved to market. The fruit market is bad. However, most everyone is hopeful that it will come back within the next few weeks.

### WEST CENTRAL FLORIDA TAMPA

E. A. (Mac) McCartney

We need rain badly throughout the territory, and groves in some

locations are beginning to show some wilt. Fruit had been moving in heavy volume until a week or two ago, but with the decline in prices many packing houses closed down and others considerably curtailed their shipments. Growers are not too optimistic about prices for the rest of the season, however, some feel that after the early fruit has been moved the prices will be better on mid season fruit such as pineapples and seedlings. At least it is hopeful that the canneries will up their prices for these varieties. We are about finished with our fall application of fertilizer but there are some few growers that will not make their application until after the first of December, hoping that they will get some rain before they make the application. The vegetable growers as a rule are coming along in good shape for this winter's crop. The Plant City section has more acreage set out in strawberries than at any time during the last four years.

### SOUTH POLK & HIGHLANDS COUNTY-AVON PARK

R. L. (Bob) Padgett

We have had continued dry weather in this section and as a result we are having the heaviest droppage of fruit that we have experienced in a number of years. The droppage is particularly heavy on early oranges. Also we are having a high percentage of split and this is heaviest on valencias and seedlings. We have a large volume of early oranges in this section yet to be moved to market, and in many cases packing houses are testing and beginning to move the mid-season varieties. One of the noticeable effects of the low prices being received for fruit is the lack of interest in the sale or trading values of citrus and land properties. The fall application of fertilizer is just about completed in this territory. There is some spraying being done for control of rust mite and in some instances oil is being employed for the control of scale insects.

### SOUTHWEST FLORIDA SARASOTA

Eaves Allison

The citrus crop in this section is coloring up well in spite of not having much cool weather. Some splitting is in evidence, probably caused by continued growth due to the unseasonable hot weather. Dropping is noticeable in those groves where the winds accompanying the last hurricane swept through. This dropping was delayed and no doubt much of it was caused by the lashing trees got at the time of the storm. Lack of rain in the Wauchula-Arcadia section and in south Hillsborough is causing some wilt in groves, and irrigation is being started again there. The Ft. Myers section has had sufficient rain and the Manatee-Sarasota section have had ample moisture. There is some blossom end rot in evidence over the territory and some yellow spot has showed up in isolated instances. Fall tomato crops in this section are not too good, probably due to the hot fall weather. Other crops are much better, with the flower growers well ahead of their schedules on a dropping market.

### HILLSBOROUGH & PINELLAS COUNTIES-ODESSA

C. S. (Charlie) Little

Dry weather is playing havoc with us in this section and everyone that has equipment for irrigation has it going to full capacity. There is a very heavy droppage of fruit in this section with the heaviest droppage being on mid-season oranges and marsh seedless grapefruit. It is generally believed that this is a result of the continuous dry hot weather. The fruit market is bad and we have seen very little of the on the tree fruit buyer in the past several weeks. A large tonnage of tangerines have been sold to the canneries in this section and very good prices, but with the sugar allowance to canners cut a number of growers are worried about what will happen to their crops. Our fall application of fertilizer is just about completed, and as a general rule the various growers used a complete fertilizer with a full range of secondaries.



## ADVERTISEMENT—LYONS FERTILIZER COMPANY



They's been a lot o' talk 'mongst growers 'n packin' house men fer the past several weeks about how come the low prices bein' received for fruit lately and 'cordin' to our reports seems as if a combination of circumstances is responsible . . . in th' first place a hot, dry fall season certainly didn't favor the rapid maturin' of early varieties of fruit. The fruit for these reasons didn't color up much, which meant it had to stay in the colorin' rooms longer than usual. Likewise the eatin' quality wasn't up to par as early as usual, and bein' cooked from too long a stay in the colorin' rooms got it to market without much taste semblance to our usual good Florida fruit. Hamlin's too, don't improve much in the colorin' process and seem to decay quicker afterwards.

We've overlooked a good bet in not educatin' the consumin' public to the fact that an orange with a green rind can be just as good as one that is well colored. If we'd done this the market would be more stable today. Certain kind of apples are marketed with green skins, so are certain oranges, we just ain't sold the consumers on this fact. Just a little while ago you couldn't hardly give oleo away, but because of good advertising a lot of folks now prefer it to butter, whether it's colored or not. It's all a matter of education.

Then, too, we take a long time learnin' that it don't pay to ship fruit to the market too early. Fruit that don't taste good may get by the buyers one time early in the season, but they shore ain't goin' to make the same mistake twice. So this practice pulls down the price on the best varieties until the public has been convinced they ain't bein' gipped. There ain't no better fruit grown than our pineapple, seedling or valencia oranges and if we could do something about keepin' insipid early varieties out of the consumers hands, we'd really get money for our midseason fruit. With the heavy plantin' of new groves goin' on we're going to have to do something to keep anything but good tastin' fruit off the market if we're to have any hope of findin' a market for our big crops and groves yet to come into bearin'.

**Uncle Bill**

# Fertilizing Pecan Trees For Good Crops . . .

Nutrition is one of the most important factors in maintaining pecan production. One question frequently asked is about trees which do not yield satisfactory crops of nuts. Low nutrition is frequently the cause, but insects and diseases may be responsible for low yields also. Insect damage varies from one year to another to a greater degree than that caused by diseases. Varieties highly susceptible to pecan scab, for example, do not produce nuts in Florida during most years without thorough spraying with Bordo mixture. However, in this brief discussion we will consider the fertilization of varieties in general, since all must receive adequate nutrition for the trees to grow and yield satisfactorily.

In the fertilization of pecans best results are obtained with adequate amounts of covercrops turned into the soil. Where a large tonnage of winter legumes such as lupines, vetch or peas are grown and returned to the soil, the percentage of nitrogen in the mixed fertilizer can be reduced materially. Any kind of organic matter is important to work into the soil, however, but if the cover-crops are non-legumes, it will be advisable to increase the nitrogen somewhat.

The time to apply fertilizer in pecan orchards is just before or about the time growth starts in the tree. The applications are generally made in March, although the last of February is not too early in most instances. Stuart and Curtis trees force into growth later and may be fertilized somewhat later than others, if necessary. As a general rule the entire orchard is fertilized at the same time.

The orchard should be cultivated immediately after the applications are made so as to mix the fertilizer with the soil. This cannot be done if winter legumes are being grown, as the cover-crops will not have made maximum growth at the time the fertilizers are applied. Under these conditions it will be advisable to apply the spring fertilizer at the usual time but defer the disking until the cover-crops are ready to be worked into the soil. If oats and

G. H. BLACKMON  
Horticulturist Florida Agricultural  
Experiment Station

rye are being grown do not allow them to reach a stage of mature growth in the orchard but disk them in while they are still making active growth. This is important for best results with pecans where such grain crops are being grown.

All fertilizers are applied broadcast over all of the land if the trees are large enough to cover 3-4 of the space. With smaller trees and trees scattered about the place, the applications should be made over the area from near the trunk to about 3 feet beyond the spread of the branches.

Experiments with pecans have shown that there are several grades of fertilizers which can be used with good results. Mixtures which contain 4 or 5 percent nitrogen, 7 or 8 percent phosphoric acid and 5 to 8 percent potash will prove satisfactory. These will be listed as 4-7-5, 5-7-5, and so on, depending on the percentages of NPK in the mixture. The important consideration is to supply the trees with enough plant foods to meet their requirements. The pecan grows to be of large size and trees of prolific varieties are capable of bearing

large quantities of nuts. Thus, large amounts of plant foods are required.

Amounts of fertilizer to apply will vary somewhat with the fertility level of the soil, but in general 1½ to 2 pounds per tree for each year of age will be sufficient. Therefore, bearing trees should receive from about 10 to 14 pounds each for those just coming into production to 40 to 75 pounds for good trees 25 years and older. In addition to these applications in the spring, it will be helpful to supply some additional nitrogen in summer if trees are carrying heavy crops of nuts and no winter legumes have been returned to the soil. Sulfate of ammonia and nitrate of soda or other soluble materials are satisfactory, applied at the equivalent

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rate of from 5 pounds each for 10 to 12 year old trees to as high as 20 pounds for old large trees capable of producing 150 to 200 pounds of nuts.

In many locations trees will require certain minor elements in addition to the regular fertilizer containing nitrogen, phosphoric acid and potash. Zinc is commonly required by the pecan in all or in localized areas in many orchards. The need of zinc by the trees is manifested by the crinkling and chlorosis of the leaves and shortening of twig growth which seems to be an extensive multiple bud development. This condition gives the appearance of a rosette of leaves at the end of the twigs, and from this characteristic it was named rosette. When severe the twigs will die and, if not corrected, the deficiency will cause the branches to die back some distance. Zinc sulfate is applied for the correction of rosette at the rate of  $\frac{1}{4}$  pound each for young trees to as high as 8 or 10 pounds for old trees severely affected. The amounts to supply for a maintenance program after rosette has been corrected will vary from  $\frac{1}{4}$  to 2 pounds per tree, depending on age of trees and the soil in which they are growing.

Twig growth of proper size must be made for pecan trees to bear successfully. The wood developed during one year produces nuts the next year. Therefore, the fertilizer applied this spring will not cause trees to force a greater number of blooms this year but it will maintain the trees in good condition and thus a greater possibility of carrying the nuts to maturity. Hence, it is necessary to maintain a fertilizing program that will produce sufficient twigs each year for annual production. If we can be of service to you at any time in connection with your pecan problems, call on us.

#### SOME CHANGES IN CITRUS HANDLING

(Continued from page 6)

was the beginning of the citrus canning business. Perhaps this pioneer did not realize, at the time, that his efforts were to bring about the greatest revolution affecting the citrus industry in all time.

The efforts of Mr. Street, and later discoveries, have made possible the preserving and shipping of citrus fruit products and juices to mankind in all parts of the civilized world. Today the canning pro-

cesses constitute a greater outlet for the citrus grower than the market for fresh fruit. However, there will always be both. The healthful qualities of citrus are known far and wide and the war has tended to introduce it in many remote places.

With development of the canning industry there is now little waste of fruit involved. The citrus rind or peel is utilized, to some extent, in manufacturing candies, jams and marmalades. The pulp and other waste products of many canneries is processed by dehydration to provide a very satisfactory cattle feed. Many dairymen located near operating canneries purchase and feed ground citrus pulp to stock in the fresh state with satisfactory results. Citrus molasses constitutes another by-product of canning plants along with oil extracted from seeds.

With so many developments al-

ready perfected for utilizing citrus during the past 25 years it is difficult to predict or guess what the future has in store for the citrus industry.

Bradford County farmers planted 300 acres of pasture during the past month. Most of the acreage was new land that was recently cleared. Farmers also reported they cooperatively purchased four cars of fertilizer and three cars of limestone for application to pastures and fall oats.

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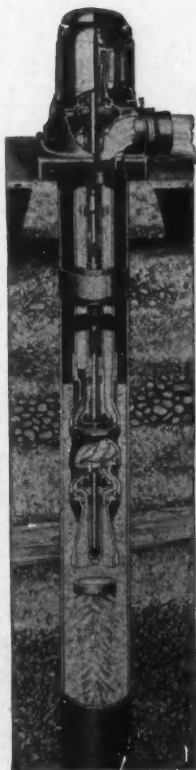
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**PROGRESS REPORTS**

(Continued from page 18)

tank containing 2, 4-D solution in the grove or near plants it is not desired to kill. After using 2, 4-D always follow the manufacturer's directions regarding the cleaning of spray equipment. Cleaning should be done immediately after use. Under no circumstances should other types of spraying be done without first having thoroughly cleaned the equipment. From California it has been reported that damage to lemon trees resulted from residual 2, 4-D in the equipment after washing and flushing twice with clean water and putting out two or three subsequent tanks of oil spray. For the oil soluble compounds it is generally recommended that the equipment be washed either with kerosene or an emulsifiable oil in water. Soap, soda, or trisodiumphosphate at about 1 pound to 25 gallons of water are recommended for cleaning after the water soluble compounds have been used. Be sure to clean the pump, strainer, hose and guns also, letting the tank stand full of clean water overnight should be desirable.

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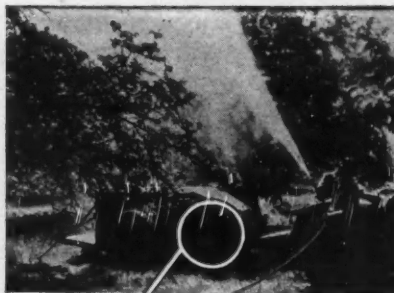
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